NON-PUBLIC?: N
ACCESSION #: 8904130103
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Braidwood Unit 1 PAGE: 1 OF 04

DOCKET NUMBER: 05000456

TITLE: Reactor Trip from Governor Valve Closure due to Defective Turbine Trip Test Switch
EVENT DATE: 03/06/89 LER #: 89-004-00 REPORT DATE: 03/31/89

OPERATING MODE: 1 POWER LEVEL: 097

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Mike Smith, Technical Staff Engineer Ext.2402
TELEPHONE: (815)458-2801

COMPONENT FAILURE DESCRIPTION:
CAUSE: X SYSTEM: JJ COMPONENT: --HS MANUFACTURER: W120
REPORTABLE TO NPRDS: NO

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT: At 0100 on March 6, 1989 a Surveillance was in progress to test Train B Turbine Trip Relay K640. During the initial preparation stops of the procedure the Interface Diaphragm Valve Test Valve Control Switch, CS/DVT, s taken from the NORM (normal) to the PERM (permissive) position. The PERM SET (test permissive enabled) light is verified illuminated on the Control panel. This initial setup provides for testing without tripping he main turbine. At 0154, a Nuclear Station Operator depressed the relay test switch. The governor valves rifted to the closed position. The closure of the governor valves resulted in a decrease in steam flow and increase in steam pressure which had a "shrink" effect on Steam Generator Level instrumentation. The indicated levels of 1C and 1D Steam Generators decreased to the Low Low Level Reactor Trip Setpoint and the reactor tripped, turbine tripped, and the Auxiliary Feedwater Pumps auto started. The cause of this event s a defective test switch, CS/DVT. The failure of the switch resulted in the control system reducing the governor valve position limits to zero. The switch will be replaced. Previous Event Corrective Action was not applicable to this Event.

END OF ABSTRACT

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 1; Event Date: March 6, 1989; Event Tim: 0154;
Mode: 1 - Power Operation; Rx Power: 97%;

RCS AB! Temperature/Pressure: 585 degrees F/2235 psig

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event that contributed to the severity of the event.

At 0100 on March 6, 1989 Braidwood Operating Surveillance lBwOS 3.2.1-931, Unit One ESFAS Instrumentation Slave Relay Surveillance, was in progress. The purpose of this surveillance is to test Train B Turbine Trip Relay K640. During the initial preparation stops of the procedure the Interface Diaphragm Valve Test Valve Control Switch, CS/DVT, (TG) TB! is taken from the NORM (normal) to the PERM (permissive) position. The PERM SET (test permissive enabled) light is verified illuminated on the Digital Electrohiydraulic Control (DEH) JJ! panel. This initial setup provides for testing of the K640 relay without tripping the main turbine.

At 0154, a Nuclear Station Operator (NSO) (Licensed Reactor Operator) depressed relay test switch S820 as per step F.I.14 of the procedure. An Equipment Operator (operator non-Licensed) at the Turbine Pedestal (TG) TB! who was waiting to perform local verifications associated with the procedure observed that the governor valves drifted from the throttled, running, position to the closed position. The closure of the governor valves resulted in a decrease in steam flow and an increase in steam pressure which had a "shrink" effect on Steam Generator (RC) AB! level instrumentation. The indicated levels for the 1C and 1D Steam Generators decreased to the Low Low Level Reactor Trip Setpoint and the Reactor tripped. The Reactor trip with Reactor power in excess of 30% resulted in a turbine trip. The Low Low Steam Generator level resulted in an auto start of the Auxiliary Feedwater Pumps (AF) BA!.

Operator actions neither increased or decreased the severity of the event. All protective systems performed as designed. Stable conditions were immediately re-established.

The appropriate NRC notification via the ENS phone system was made at 0336 pursuant to 10CFR50.72(b)(2)(ii).

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - any event or

condition that resulted in manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System.

C. CAUSE OF EVENT:

The root cause of this event was a defective switch. Contact 3P-T of the Interface Diaphragm Valve Test Valve Control Switch, CS/DVT failed to close when the switch was placed in the PERM position as required by step F.1.8 of the surveillance procedure. The 3P-T contacts of switch CS/DVT are interlocked with the DEH control system computer. This interlock signals the computer that the Auto Stop Oil system (TG) TB! is pressurized when in fact depressing test switch S820 depressurizes the system to test the Slave Relay. The failure of contact 3P-T to close resulted in the DEH control system being signaled that the turbine was not latched resulting in the governor valve position limits to be reduced to zero and subsequent closure of the turbine governor valves.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. All protective systems operated as designed.

Both redundant trains of the Reactor Protection System (RP) JG! were operable and available to perform the Reactor Trip and Turbine Trip functions per the design of the Reactor Protection System.

Under the wo
st case conditions with a closure of all four governor valves at 100% power, a Reactor Trip and Turbine Trip would have occurred as was the case in this event.

E. CORRECTIVE ACTIONS:

The immediate corrective actions were to establish stable plant conditions.

Nuclear Work Request (NWR) A29586 was generated to replace the defective switch, CS/DVT. This will be tracked to completion by action item 456-200-89-03801.

Technical Staff and Operating personnel have completed a review of all procedures that are potentially affected by the faulty switch. Temporary Procedure Changes have been initiated to require that an electrical jumper be placed in parallel with the switch contact during the performance of tests where the switch is required. The switch has also been caution carded.

F. PREVIOUS OCCURRENCES:

There was a previous occurrence of an Engineered Safety Feature actuation as a result of a defective switch. The corrective actions were implemented addressing both root and contributing causes. Previous corrective actions are not applicable to this event.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number	MFG Part Number
Westinghouse	Heavy Duty Control Switch Block	N/A	PBIA

Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

April 3, 1989
BW/89-416

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(iv) which requires a 30 day written report.

This report is number 89-004-00; Docket No. 50-456.

Very truly yours,

R.E. Querio
Station Manager
Braidwood Nuclear Station

REQ/JDW/jfe

(8176z)

Enclosure: Licensee Event Report No. 89-004-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
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